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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,836	04/12/2001	Yang Kyoo Han	0465-0830P-SP	1949

2292 7590 07/15/2003

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/15/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/832,836

Applicant(s)

HAN ET AL.

Examiner

Martin J Angebranndt

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6 and 10-22 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 7-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1756

1. The response provided by the applicant has been read and given careful consideration. Responses to the arguments of the applicant are presented after the first rejection to which they are directed. Rejections of the previous office action, not appearing below are withdrawn based upon the amendment and arguments of the applicant. The examiner thanks the applicant for providing the references cited on page 3 of the instant application. Upon reconsideration, the examiner agrees that claims 4,5,8 and 9 are properly dependent upon claim 1. The term "blend co-polymer" is held to be a simple mixture of polymers based upon the disclosure on page 7 at lines 9-12. The rejection based upon Han et al., Mol. Cryst. Liq. Cryst. Vol. 349, pp. 75-78 (2000) is withdrawn, based upon the declaration by the applicant that this was not of record more than one year prior to the filing of the instant application and that it is derived from their work. The rejection based upon Burns is withdrawn now that the claims are limited to polymers having two disperse red moieties bound to each repeating unit.

2. Claims 5, and 9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The polymers of these claims only have one disperse red functional group bound to one of the two repeating units of the polymer. This claim is to a copolymer with **two** repeating units. The applicant might want to replace "each" with - - same- - to embrace copolymers such as that recited in claim 5.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1756

4. Claims 6-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 should clearly indicate that the two disperse red functional groups are bound to the - - same - - repeating unit of the monomer if polymers with **two or more repeating units** are to be embraced. See above

In claims 6-9, and "polyvinylcabazol" should read - - polyvinylcarbazole- - . Please make this correction. The applicant did not address this issue.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2 and 10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999).

See synthesis described which is identical to that described on page 21 of the instant application and the description of the use of argon ion laser for writing in the article. The poly(malonic ester) is described as containing "two symmetrical disperse red 1" moieties.

The applicant argues that the synthesis methods are not identical. The examiner maintains the position that the polymers produced are embraced by the instant claim language. The examiner points out that the claims are not directed to a method of producing the polymer, but the polymer itself or a method of coating it. The examiner also points out that the step for forming the malonic acid ester is an unrecited feature appearing on page 20, not page 21. The steps in preparing the poly(malonic ester) with two symmetrical disperse red 1 moieties is identical as pointed out by the examiner. One would assume that as the malonic acid ester is discussed as a reactant in the reference, it has been made.

8. Claims 11-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Savant et al. '221.

See figure 3, noting that the polarization of the LED or laser diode differs from that on the detector (26) and that the light passes through the medium twice (the second time due to reflection). Notes the 633 nm output disclosed in figures 1 and 2 and the description of the readout process in example XIII, columns 23-26). The azo dyes may be blended or covalently bound to the polymer and include R moieties pendant on the same monomer. (7/34-60). Disperse red is shown in column 10. The use of polymethylmethacrylate (PMMA) is disclosed (8/64). Examples 1 describes writing gratings using an argon ion laser, reading them using the HeNe laser and erasing them using the argon ion laser. The writing and erasure heats the layer due to

the absorption of the laser, therefore the heating requirement is met inherently in this process. The overall heating of the layer after coating is also disclosed. .

The examiner points out that the detector (26) arm has a polarizer, which is the second in line. The reference specifically discloses in the birefringent reading methods, that the HeNe laser output passes through two crossed polarizers. (19/51-54). When written upon, light passes through the second polarizer to the detector. (19/51-68). The rejection stands.

9. Claims 1, 2 and 10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998.

See synthesis described in the abstract, which is identical to that described on page 21 of the instant application and the description of the use of argon ion laser for writing in the article. The article is now made of record and the applicant is directed to the synthesis which parallels that of Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999) and the resulting polymer shown in figure 1 on page 273. The use of crossed polarizers is disclosed. (page 273). After spin coating from a methylene chlorides solution, (page 272), the film is heated above the melting point of the polymer and then quenched (cooled) (page 273). The use of a linearly polarized argon ion laser for writing is disclosed.

The rejection stands. The examiner points out that the claims are not directed to a method of producing the polymer, but the polymer itself or a method of coating it.

10. Claims 1-2,6 and 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the

Art Unit: 1756

corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998 or Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999), in view of Savant et al. '221.

In addition to the basis provided above, the examiner holds that it would have been obvious to one skilled in the art to modify the process of either Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998 or Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999) by using other apparatus for exposure known in the art to be useful with disperse red based photoisomerizable media, such as that disclosed by Savant et al. '221 with a reasonable expectation of being able to record, read and erase information based upon the disclosure of that functionality in Savant et al. '221 and that added possibility of recording holographic information and/or it would have been obvious to one skilled in the art to modify the process of either Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998 or Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999) by using other binders such as PMMA as taught by Savant et al. '221 to adjust the Tg of the composition.

The rejection stands for the reasons provided above, further, the examiner point out the use of crossed polarizer systems in both Savant et al. '221 and Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999).

11. **Claims 3,4,5 and 7-9 are objected to as allowable over the prior art of record, but dependent upon rejected claims**, as there is no motivation to form the recited polymer, particularly in view of the obviation of Han et al., Mol. Cryst. Liq. Cryst. Vol. 349, pp. 75-78 (2000).

Art Unit: 1756

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Korea 1020000252948 and 1019940006131 are the patent publications relating to the applications cited on page 3 of the instant application.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

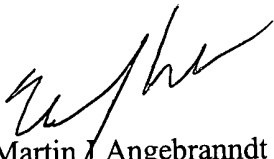
The 112 rejection is modified based upon the amendment.

14 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Art Unit: 1756

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J. Angebranndt
Primary Examiner
Art Unit 1756

July 10, 2003